

# High-Performance Piezo Amplifier

Industrial / OEM Module with Energy Recovery for Continuous Dynamic Applications



## E-617

- Peak power to 280 W
- High currents to 2000 mA
- Low power consumption due to integrated energy recovery
- OEM module and top hat rail mounting

### High-power amplifier for low-voltage piezo actuators

Peak power up to 280 W, average output power up to 100 W. Output and absorption of peak current up to 2000 mA. Dynamic operation of piezo actuators with high capacity at a bandwidth up to the kilohertz range.

### High performance with heavy loads

An analog input voltage is amplified in the E-617 amplifier by a factor of 10 and provides precision control of piezo actuators and piezo positioning systems. This analog mode is ideal for applications where fast response times are essential at maximum bandwidth. The specification or position feedback in absolute values is either not significant or is done by external position sensors.

### Energy recovery

The efficient switching principle reduces the power consumption and heat dissipation considerably, especially in dynamic applications. In this way, the energy is coupled into the piezo with low loss via pulse width modulation (PWM). The energy generated by the discharging piezo is recovered and made available for the next charge. A unipolar supply voltage between 23 to 26 V DC is sufficient for operation.

### Fields of application

Industry, automation. High dynamics scanning or switching applications.

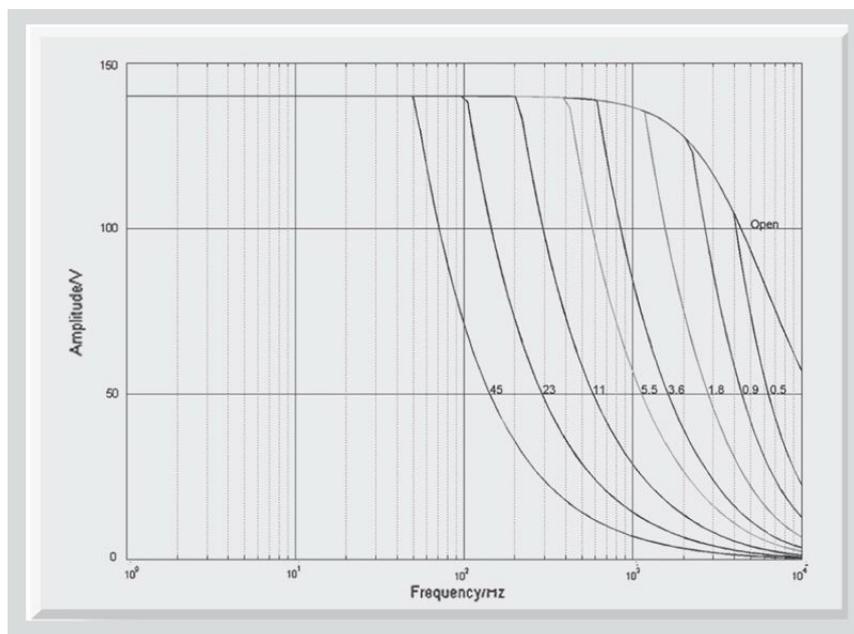
## Specifications

	E-617.001	E-617.00F
Function	High-performance piezo amplifier for top hat rail mounting	High-performance piezo amplifier, OEM module
Channels	1	1
Amplifier	E-617.001	E-617.00F
Input voltage range	-2 to 12 V	-2 to 12 V
Output voltage	-30 to 130 V	-30 to 130 V
Peak power (<5 ms)	280 W	280 W
Average output power (>5 ms)	Equivalent to 100 W reactive power	Equivalent to 100 W reactive power
Peak current (<5 ms)	2000 mA	2000 mA
Average output current (>5 ms)	1000 mA	1000 mA
Current limitation	Short-circuit proof	Short-circuit proof
Voltage gain	10 ±0.1	10 ±0.1
Amplifier bandwidth, small signal	3.5 kHz	3.5 kHz
Ripple, noise, 0 to 10 kHz	<2 mV <sub>rms</sub> <10 mV <sub>pp</sub>	<2 mV <sub>rms</sub> <10 mV <sub>pp</sub>
Capacitive base load (internal)	1.0 µF	1.0 µF
Suggested capacitive load	>3 µF	>3 µF
Output impedance	0.5 Ω	0.5 Ω
Amplifier resolution	<1 mV	<1 mV
Amplifier classification	Class D (switching amp), 100 kHz	Class D (switching amp), 100 kHz
Input impedance	100 kΩ	100 kΩ
Interfaces and operation	E-617.001	E-617.00F
Piezo connection (voltage socket)	Phoenix-plug connector MINI-COMBICON 3-pin MC1.5 / 3-ST-3.81	LEMO ERA.00.250.CTL (front); DIN 41612 32-pin (rear)
Analog input / control input socket	Phoenix MINI-COMBICON plug connector, 6-pin IMC1.5 / 6-ST-3.81	SMB
DC offset setting	External potentiometer (not in the scope of delivery), adds 0 to 10 V to the input voltage	External potentiometer (not in the scope of delivery), adds 0 to 10 V to the input voltage
Miscellaneous	E-617.001	E-617.00F
Operating voltage	23 to 26 V DC, stabilized, on Phoenix plug MINI-COMBICON 3-pin IMC1.5 / 3-ST-3.81	23 to 26 V DC, stabilized, on 32-pin DIN 41612 connector
Max. power consumption	<30 W	<30 W
Operating temperature range	5 to 50 °C (above 40 °C, power derated)	5 to 50 °C (above 40 °C, power derated)
Dimensions	205 mm × 105 mm × 60 mm	7 HP / 3 RU
Mass	1 kg	0.35 kg

## Drawings / Images



*E-617.00F OEM module*



*E-617: Operating limits (open loop) with various capacitive loads, capacitance values in  $\mu\text{F}$*

## Ordering Information

### **E-617.001**

High-power piezo amplifier, 1 channel, -30 to 130 V, 100 W, top hat rail mounting

### **E-617.00F**

High-power piezo amplifier with energy recovery, 1 channel, -30 to 130 V, 100 W, OEM module